

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the above-identified application.

Listing of Claims

1. (Currently Amended) A method of performing cascaded replication comprising:
asynchronously replicating ~~first~~ data to be written to a data volume of a first node to a data volume of a second node, ~~wherein the first data is replicated to the data volume of the second node in an order in which the first data is to be written to the data volume of the first node;~~ and
replicating ~~second~~ data to be written to said data volume of said second node to a data volume of a third node, wherein ~~the second data is not replicated to the data volume of the third node in an order in which the second data is to be written to the data volume of the second node~~ said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and
replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; wherein
said first frequency is higher than said second frequency.
2. (Cancelled)

3. **(Currently Amended)** A method of performing cascaded replication comprising:
asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and
replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises asynchronously replicating said data to be written to said data volume of said second node to said data volume of said third node; and replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; and
replicating data to be written to said data volume of said fourth node to a data volume of a fifth node, wherein said replicating data to be written to said data volume of said fourth node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said fourth node to said data volume of said fifth node, wherein
said first frequency is higher than said second frequency.
4. **(Cancelled)**

5. (Previously Presented) The method of claim 3, wherein,
said asynchronously replicating data to be written to said data volume of said first node
comprises, asynchronously replicating data to be written to a data volume of a
primary node to a data volume of an intermediate node; and
said asynchronously replicating data to be written to said data volume of said second
node comprises, asynchronously replicating data to be written to said data volume
of said intermediate node to a data volume of a secondary node.
6. (Previously Presented) The method of claim 5, wherein said asynchronously replicating
data to be written to said data volume of said intermediate node comprises asynchronously
replicating data to be written to said data volume of said intermediate node to a data volume of
each of a plurality of secondary nodes.
7. (Previously Presented) The method of claim 3, wherein,
said asynchronously replicating data to be written to said data volume of said first node
comprises asynchronously replicating data to be written to said data volume of
said first node to said data volume of said second node using a first data link
coupled between said first node and said second node;
said asynchronously replicating data to be written to said data volume of said second
node comprises asynchronously replicating data to be written to said data volume
of said second node to said data volume of said third node using a second data
link coupled between said second node and said third node; and
said first data link has a higher bandwidth than said second data link.

8. **(Currently Amended)** An apparatus comprising:
 - a first device for asynchronously replicating ~~first~~ data to be written to a data volume of a first node to a data volume of a second node, ~~wherein the first device is configured to asynchronously replicate the first data to the data volume of the second node in an order in which the first data is to be written to the data volume of the first node;~~ and
 - a second device for replicating ~~second~~ data to be written to said data volume of said second node to a data volume of a third node, wherein ~~the second device is not configured to replicate the second data to the data volume of the third node in an order in which the second data is to be written to the data volume of the second node~~ said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and
 - a third device for replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node, wherein

said first frequency is higher than said second frequency.
9. **(Cancelled)**

10. (Currently Amended) An apparatus configured to perform cascaded replication comprising:

a first device for asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and

a second device for replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said second device for replicating data to be written to said data volume of said second node comprises a device for asynchronously replicating said data to be written to said data volume of said second node to said data volume of said third node; and

a third device for replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said third device for replicating data to be written to said data volume of said third node comprises a device for periodically replicating, at a first frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; and

a fourth device for replicating data to be written to said data volume of said fourth node to a data volume of a fifth node, wherein said fourth device for replicating data to be written to said data volume of said fourth node comprises a device for periodically replicating, at a second frequency, said data to be written to said data volume of said fourth node to said data volume of said fifth node, wherein said first frequency is higher than said second frequency.

11. (Cancelled)

12. (Previously Presented) The apparatus of claim 10, wherein,
said first device for asynchronously replicating data to be written to said data volume of
said first node comprises,
a device for asynchronously replicating data to be written to a data volume of a
primary node to a data volume of an intermediate node; and
said second device for asynchronously replicating data to be written to said data volume
of said second node comprises,
a device for asynchronously replicating data to be written to said data volume of
said intermediate node to a data volume of a secondary node.
13. (Previously Presented) The apparatus of claim 12, wherein said device for
asynchronously replicating data to be written to said data volume of said intermediate node
comprises a device for asynchronously replicating data to be written to said data volume of said
intermediate node to a data volume of each of a plurality of secondary nodes.
14. (Previously Presented) The apparatus of claim 10, wherein,
said first device for asynchronously replicating data to be written to said data volume of
said first node comprise a device for asynchronously replicating data to be written
to said data volume of said first node to said data volume of said second node
using a first data link coupled between said first node and said second node;
said means for asynchronously replicating data to be written to said data volume of said
second node comprises a device for asynchronously replicating data to be written
to said data volume of said second node to said data volume of said third node
using a second data link coupled between said second node and said third node;
and
said first data link has a higher bandwidth than said second data link.

15. (Currently Amended) A set of machine-readable mediums collectively having a plurality of instructions executable by two or more machines, wherein said plurality of instructions when executed cause said two or more machines to perform a method comprising:

asynchronously replicating ~~first~~ data to be written to a data volume of a first node to a data volume of a second node, ~~wherein the first data is asynchronously replicated to the data volume of the second node in an order in which the first data is to be written to the data volume of the first node;~~ and

replicating ~~second~~ data to be written to said data volume of said second node to a data volume of a third node, ~~wherein the second data is not replicated to the data volume of the third node in an order in which the second data is to be written to the data volume of the second node~~ said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and

replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; wherein

said first frequency is higher than said second frequency.

16. (Cancelled)

17. **(Currently Amended)** A set of machine-readable mediums collectively having a plurality of instructions executable by two or more machines, wherein said plurality of instructions when executed cause said two or more machines to perform a method comprising: asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises asynchronously replicating said data to be written to said data volume of said second node to said data volume of said third node; and replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; and replicating data to be written to said data volume of said fourth node to a data volume of a fifth node, wherein said replicating data to be written to said data volume of said fourth node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said fourth node to said data volume of said fifth node, wherein said first frequency is higher than said second frequency.
18. **(Cancelled)**

19. (Previously Presented) The set of machine-readable mediums of claim 17, wherein, said asynchronously replicating data to be written to said data volume of said first node comprises,
replicating data to be written to a data volume of a primary node to a data volume of an intermediate node; and
said asynchronously replicating data to be written to said data volume of said second node comprises,
asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of a secondary node.
20. (Previously Presented) The set of machine-readable mediums of claim 19, wherein said asynchronously replicating data to be written to said data volume of said intermediate node comprises asynchronously replicating data to be written to said data volume of said intermediate node to a data volume of each of a plurality of secondary nodes.
21. (Previously Presented) The set of machine-readable mediums of claim 17, wherein, said asynchronously replicating data to be written to said data volume of said first node comprises asynchronously replicating data to be written to said data volume of said first node to said data volume of said second node using a first data link coupled between said first node and said second node;
said asynchronously replicating data to be written to said data volume of said second node comprises asynchronously replicating data to be written to said data volume of said second node to said data volume of said third node using a second data link coupled between said second node and said third node; and
said first data link has a higher bandwidth than said second data link.

22.-25 (Cancelled)